10. The pressure and volume of a gas are changed along the path ABCA. Determine the work done (including the algebraic sign) in each segment of the path: (a) A to B, (b) B to C, and (c) C to A.

22. One-half mole of a monatomic ideal gas expands adiabatically and does 610 J of work. By how many kelvins does its temperature change? Specify whether the change is an increase or a decrease.

30. Heat flows into two identical samples of a monatomic ideal gas. In the first sample the heat flows in while the volume of the gas is kept constant, and it causes the temperature to rise by 75 K. In the second sample, an identical amount of heat flows in while the pressure (but not the volume) of the gas is kept constant. By how much does the temperature of this sample increase?